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(21) International Application Number: PCT/CZ96/00015 (22) International Filing Date: 17 June 1996 (17.06.96) (30) Priority Data: PV 1269-96 2 May 1996 (02.05.96) CZ (71)(72) Applicant and Inventor: PALIČKA, Josef [CZ/CZ]; V Prokopě 1353, 250 88 Čelákovice (CZ). (74) Agent: REICHEL, Pavel; Jindřišská 34, 110 00 Praha 1 (CZ).		(81) Designated States: AU, BG, BR, CA, CN, FI, HU, JP, MX, NO, NZ, PL, RO, RU, SI, SK, UA, US, European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published <i>With international search report.</i> <i>With amended claims.</i>
(54) Title: TABLET MADE OF VEGETABLE SUBSTANCE (57) Abstract The composition of the tablet made of vegetables is 10-90 wt.% of milled dried vegetable substances and/or dried alfalfa or dried seaweed and 10-90 wt.% of binding ingredients, made of a combination of ingredients including dried soya oil, dried full-fat milk, starch maltodextrin syrup, microcrystalline cellulose, dried bakers and brewers yeast and dried fish oil. The dried vegetable substance is milled into grains no bigger than 1mm.		

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TABLET MADE OF VEGETABLE SUBSTANCE

Field of the art

5 The invention relates to tablets made of vegetables used as a foodstuff supplement with nourishing and supporting effects on the human organism and made from usual types of vegetables.

10 State of the art

 As is well known, vegetables play an important role in nourishment for human beings because they contain many enzymes, vitamins and mineral substances with trace elements and phytoncides, antibiotics and diuretics. The taste of some
15 kinds of vegetables in their raw state is not, however, acceptable to everyone and therefore, some people eat few or no vegetables, even though vegetables are indispensable to healthy nourishment.

 Hitherto existing tablets to overcome this problem
20 contain the above substances in the form of an extract, such as the well-known garlic or seaweed tablets. The disadvantages of these tablets is that they do not contain important fibre needed for healthy nourishment or the necessary ingredients to obtain the proper benefit of fat
25 soluble vitamins.

Background of the invention

 The tablet made of vegetables with nourishing and supporting effects on the human organism under this invention
30 largely overcomes the disadvantages of the existing state of the art.

 The vegetable tablet contains 10-90% wt. of milled dried vegetable substance and/or dried alfalfa substance or

dried seaweed substance, the particles of which are no bigger than 1 mm, and 10-90% wt. of binding substances made of a combination of ingredients including dried soya oil, dried full-fat milk, starch maltodextrin syrup, microcrystalline cellulose, dried bakers and brewers yeast and dried fish oil.

An advantage of this tablet, made of dry vegetable substances and produced in this way, resides in a high content of biologically highly nutritious substances, also in its very good cohesion and an acceptable solubility level. Another advantage of the vegetable mixture resides in various combinations of substances during digestion, where the proper benefit of one substance cannot be obtained without another substance, e.g. the benefit of calcium in the body depends on the presence of a sufficient quantity of magnesium and vitamin D; the benefit of magnesium depends on the presence of calcium, vitamin E, C and B₆. The benefit of iron will considerably increase in the presence of vitamin C. The organism is able to absorb vitamin A well only in the presence of vitamin E.

It is an advantage if the tablet contains a 15-20% wt. of binding ingredients. The advantage in such a case is the tablet's mechanical stability; also, although it is easily soluble, its edges do not crumble.

Another advantageous composition resides in the fact that the dried vegetable substance is made from combined groups of dried vegetable products, leaves, vegetable tops, roots and seeds and/or from combinations of dried soya, wheat, rye barley, lentil and bean sprouts. This composition of the tablet further increases its biological value.

It is advantageous if the tablet contains a 10% wt. of binding ingredients, 40% wt. of dried alfalfa, 15% wt. of dried beans, 15% wt. of dried celery and 20% wt. of dried sprouts. A tablet having this composition is particularly beneficial where the organism requires increased calcium.

If an increased content of magnesium is required, it is advantageous if the tablet contains 20% wt. of binding

ingredients, 40% wt. of dried spinach, 20% wt. of dried beans and 20% wt. of dried cabbage.

Another advantageous embodiment of the tablet is characterized in that its surface is covered by dipping into a coating containing substances that appeal to the taste, e.g. sugar, gelatine or other food or pharmaceutical substances, thus not only increasing the attraction of the tablet, particularly for children, but also partially preventing atmospheric humidity from penetrating into the tablet and subsequently mould growth.

Examples of the preferred embodiment

The tablet consists of 80% wt. of dried vegetable substance. This dried vegetable substance is obtained by drying or lyophilization, from vegetables in a compact state if possible, in order that by milling or grating in the raw state, the pulp does not oxidize. The drying process is performed at a temperature of 40°C to retain biological value. In this way, vegetables retain enzymes and minerals with trace elements in an organic state. The moisture level of the dried substance varies from 3-8% to prevent entry of bacteria and mould during the storage or tablets stage. Thereafter, the dried vegetables are divided into smaller pieces and milled. In order that the pressed tablet remains cohesive, the milled grains may not be larger than 1 mm. The advantage of milling all the raw materials used into very fine particles is that maximum benefit is obtained during digestion from all those substances most beneficial for human health. This benefit cannot be obtained from usual chewing, particularly in the case of vegetable peel and tops which contain most of the important substances, and also in the case of all types of harder vegetables. Grain size is also important because it allows easy pouring which is required to achieve the correct dosage in a tablet-making machine of the usual type. The size and shape of tablets are designed to be swallowed without any problems both by adults and children.

Binding ingredients, representing a 20% wt., form the other component of the mixture of which the tablet is made. These ingredients are either dried soya oil or dried full-fat milk. These binding ingredients increase the cohesion of the milled and dried vegetable substance and the digestibility of fat soluble vitamins.

Below are 32 examples of combinations of various kinds of dried vegetables, dried sprouts and binding ingredients. In these examples, binding ingredients are marked as B and sprouts as S.

The contents of individual components in these combinations are determined so as to allow the maximum benefit of elements contained in individual components during digestion. The percentages used in the examples below refer to % wt.

Example 1

Savoy cabbage 80% + B 20%.

Savoy cabbage 40% + celery 40% + B 20%

Savoy cabbage 30% + celery 25% + parsley 25% + B 20%

Savoy cabbage 30% + celery 15% + parsley 15% + S 20% + B 20%

Example 2

Onion 80% + B 20%

Onion 40% + alfalfa 40% + B 20%

Onion 30% + alfalfa 25% + red beetroot 25% + B 20%

Onion 30% + alfalfa 15% + red beetroot 15% + S 20% + B 20%

Example 3

Asparagus 80% + B 20%

Asparagus 40% + cabbage 40% + B 20%

Asparagus 30% + cabbage 25% + parsnip 25% + B 20%

Asparagus 30% + cabbage 15% + parsnip 15% + S 20% + B 20%

Example 4

Pepper 80% + B 20%

Pepper 40% + broccoli 40% + B 20%

Pepper 30% + broccoli 25% + carrot 25% + B 20%

5 Pepper 30% + broccoli 15% + carrot 15% + S 20% + B 20%

Example 5

Horse-radish 80% + B 20%

Horse-radish 40% + alfalfa 40% + B 20%

10 Horse-radish 30% + alfalfa 25% + cauliflower 25% + B 20%

Horse-radish 30% + alfalfa 15% + cauliflower 15% + S 20% + B 20%

Example 6

15 Pumpkin 80% + B 20%

Pumpkin 40% + spinach 40% + B 20%

Pumpkin 30% + spinach 25% + parsley 25% + B 20%

Pumpkin 30% + spinach 15% + parsley 15% + S 20% + B 20%

20 Example 7

Tomato 80% + B 20%

Tomato 40% + watercress 40% + B 20%

Tomato 30% + watercress 25% + cabbage 25% + B 20%

Tomato 30% + watercress 15% + cabbage 15% + S 20% + B 20%

25

Example 8

Chicory 80% + B 20%

Chicory 40% + spinach 40% + B 20%

Chicory 30% + spinach 25% + celery 25% + B 20%

30 Chicory 30% + spinach 15% + celery 15% + S 20% + B 20%

Example 9

Seaweed 80% + B 20%

Seaweed 40% + spinach 40% + B 20%

35 Seaweed 30% + spinach 25% + carrot 25% + B 20%

Seaweed 30% + spinach 15% + carrot 15% + S 20% + B 20%

Example 10

Leek 80% + B 20%

Leek 40% + spinach 40% + B 20%

Leek 30% + spinach 25% + bean 25% + B 20%

5 Leek 30% + spinach 15% + bean 15% + S 20% + B 20%

Example 11

Parsnip 80% + B 20%

Parsnip 40% + alfalfa 40% + B 20%

10 Parsnip 30% + alfalfa 25% + carrot 25% + B 20%

Parsnip 30% + alfalfa 15% + carrot 15% + S 20% + B 20%

Example 12

Parsley 80% + B 20%

15 Parsley 40% + spinach 40% + B 20%

Parsley 30% + spinach 25% + celery 25% + B 20%

Parsley 30% + spinach 15% + celery 15% + S 20% + B 20%

Example 13

20 Radish 80% + B 20%

Radish 40% + cabbage 40% + B 20%

Radish 30% + cabbage 25% + alfalfa 25% + B 20%

Radish 30% + cabbage 15% + alfalfa 15% + S 20% + B 20%

25 Example 14

Radish 80% + B 20%

Radish 40% + pumpkin 40% + B 20%

Radish 30% + pumpkin 25% + savoy cabbage 25% + B 20%

Radish 30% + pumpkin 15% + savoy cabbage 15% + S 20% + B 20%

30

Example 15

Red beetroot 80% + B 20%

Red beetroot 40% + carrot 40% + B 20%

Red beetroot 30% + carrot 25% + parsley 25% B 20%

35 Red beetroot 30% + carrot 15% + parsley 15% + S 20% + B 20%

Example 16

Chive 80% + B 20%

Chive 40% + potato 40% + B 20%

Chive 30% + potato 25% + red beetroot 25% + B 20%

5 Chive 30% + potato 15% + red beetroot 15% + S 20% + B 20%

Example 17

Celery 80% + B 20%

Celery 40% + spinach 40% + B 20%

10 Celery 30% + spinach 25% + parsley 25% + B 20%

Celery 30% + spinach 15% + parsley 15% + S 20% + B 20%

Example 18

Cabbage 80% + B 20%

15 Cabbage 40% + carrot 40% + B 20%

Cabbage 30% + carrot 25% + celery 25% + B 20%

Cabbage 30% + carrot 15% + celery 15% + S 20% + B 20%

Example 19

20 Brussels sprouts 80% + B 20%

Brussels sprouts 40% + onion 40% + B 20%

Brussels sprouts 30% + onion 25% + red beetroot 25% + B 20%

Brussels sprouts 30% + onion 15% + red beetroot 15% + S 20% +
B 20%

25

Example 20

Cucumber 80% + B 20%

Cucumber 40% + parsley 40% + B 20%

Cucumber 30% + parsley 25% + lettuce 25% + B 20%

30 Cucumber 30% + parsley 15% + lettuce 15% + S 20% + B 20%

Example 21

Carrot 80% + B 20%

Carrot 40% + spinach 40% + B 20%

35 Carrot 30% + spinach 25% + parsnip 25% + B 20%

Carrot 30% + spinach 15% + parsnip 15% + S 20% + B 20%

Example 22

Potato 80% + B 20%

Potato 40% + carrot 40% + B 20%

Potato 30% + carrot 25% + celery 25% + B 20%

5 Potato 30% + carrot 15% + celery 15% + S 20% + B 20%

Example 23

Cabbage 80% + B 20%

Cabbage 40% + spinach 40% + B 20%

10 Cabbage 30% + spinach 25% + horse-radish 25% + B 20%

Cabbage 30% + spinach 15% + horse-radish 15% + S 20% + B 20%

Example 24

Kohlrabi 80% + B 20%

15 Kohlrabi 40% + broccoli 40% + B 20%

Kohlrabi 30% + broccoli 25% + garlic 25% + B 20%

Kohlrabi 30% + broccoli 15% + garlic 15% + S 20% + B 20%

Example 25

20 Lettuce 80% + B 20%

Lettuce 40% + parsley 40% + B 20%

Lettuce 30% + parsley 25% + carrot 25% + B 20%

Lettuce 30% + parsley 15% + carrot 15% + S 20% + B 20%

25 Example 26

Spinach 80% + B 20%

Spinach 40% + carrot 40% + B 20%

Spinach 30% + carrot 25% + parsley 25% + B 20%

Spinach 30% + carrot 15% + parsley 15% + S 20% + B 20%

30

Example 27

Bean 80% + B 20%

Bean 40% + cabbage 40% + B 20%

Bean 30% + cabbage 25% + carrot 25% + B 20%

35 Bean 30% + cabbage 15% + carrot 15% + S 20% + B 20%

Example 28

Cauliflower 80% + B 20%

Cauliflower 40% + spinach 40% + B 20%

Cauliflower 30% + spinach 25% + red beetroot 25% + B 20%

5 Cauliflower 30% + spinach 15% + red beetroot 15% + S 20% + B 20%

Example 29

Alfalfa 80% + B 20%

10 Alfalfa 40% + carrot 40% + B 20%

Alfalfa 30% + carrot 25% + celery 25% + B 20%

Alfalfa 30% + carrot 15% + celery 15% + S 20% + B 20%

Example 30

15 Broccoli 80% + B 20%

Broccoli 40% + parsley 40% + B 20%

Broccoli 30% + parsley 25% + celery 25% + B 20%

Broccoli 30% + parsley 15% + celery 15% + S 20% + B 20%

20 Example 31

Watercress 80% + B 20%

Watercress 40% + carrot 40% + B 20%

Watercress 30% + carrot 25% + spinach 25% + B 20%

Watercress 30% + carrot 15% + spinach 15% + S 20% + B 20%

25

Example 32

Green peas 80% + B 20%

Green peas 40% + cauliflower 40% + B 20%

Green peas 30% + cauliflower 25% + red beetroot 25% + B 20%

30 Green peas 30% + cauliflower 15% + red beetroot 15% + S 20% + B 20%

CLAIMS

1. A tablet made of vegetables with nourishing and supporting effects on the human organism characterized in that it comprises 10-90% wt. of milled dried vegetable substance and/or dried alfalfa substance or dried seaweed substance, having particles not bigger than 1 mm; and 10-90% wt. of binding ingredients, made of a combination of ingredients including dried soya oil, dried full-fat milk, starch maltodextrin syrup, microcrystalline cellulose, dried bakers and brewers yeast and dried fish oil.

2. The tablet made of vegetables according to claim 1, characterized in that it comprises 15-20% wt. of binding ingredients.

3. The tablet of vegetables according to claims 1 or 2 is characterized in that the dried vegetable substance is formed from combined groups of dried vegetable products, leaves, tops, roots and seeds and/or from combinations of dried soya, wheat, rye barley, lentil and bean sprouts.

4. The tablet of vegetables according to claim 1 is characterized in that it contains a 10% wt. of binding ingredients and 40% wt. of dried alfalfa, 15% wt. of beans, 15% wt. of celery and 20% wt. of sprouts.

5. The tablet of vegetables according to claim 1 is characterized in that it contains a 20% wt. of binding ingredients and 40% wt. of dried spinach, 20% wt. of beans and 20% wt. of cabbage.

6. The tablet of vegetables according to any of claims from 1 - 5 is characterized in that the surface of the tablet is covered with a coating.

AMENDED CLAIMS

[received by the International Bureau on 04 February 1997 (04.02.97);
original claims 1-6 replaced by new claims 1-4 (1 page)]

1. A tablet made of vegetables with nourishing and supporting effects on the human organism characterized in that it comprises from 10 to 90 % wt. of milled dried vegetable substance and/or milled dried substance of sprouts of wheat, rye, barley, lentil and soya and from 10 to 90 % wt. of fat ingredients of the following set formed from dried soya oil, dried full-fat milk and dried fish oil.

2. The tablet according to claim 1, characterized in that it comprises from 10 to 12 % wt. of maltodextrin and/or starch syrup.

3. The tablet according to claims 1 or 2, characterized in that the dried vegetables substance is formed from combined groups of dried vegetable products, tops, roots and seeds.

4. The tablet according to any of claims 1 to 3 characterized in that the surface of the tablet is covered with a coating of the sugar, gelatine or food or pharmaceutical substances.

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 A23L1/212 A23P1/02

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 A23L A23P

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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Date of the actual completion of the international search

20 November 1996

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

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